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Before the  
Federal Communications Commission  
Washington, D.C. 20554

Federal Communications Commission  
Office of Secretary

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In the Matter of	)	
	)	
Ameritech Operating Companies'	)	
New Expanded Interconnection Tariff	)	CC Docket No. 96-185
	)	
Bell Atlantic Telephone Companies'	)	
New Expanded Interconnection Tariff	)	CC Docket No. 96-165
	)	
Puerto Rico Telephone Company's	)	
New Expanded Interconnection Tariff	)	CC Docket No. 96-160

### DIRECT CASE OF AMERITECH

Ameritech submits this direct case in response to the Commission's designation order in the above captioned proceeding<sup>1</sup> below, Ameritech responds to the specific questions raised by the Commission with respect to Ameritech's new expanded interconnection tariff.

**¶13 Question:** Ameritech recovers the present value of recurring costs that it may incur over the first seven years of a collocation arrangement in its initial nonrecurring rates for central office build-out ("COBO") and transmission note enclosure. We direct Ameritech to explain why the use of such a costing methodology is reasonable. We direct Ameritech to state whether it agrees that recovering recurring costs through recurring charges would ensure that the interconnector would only pay for those costs that are actually incurred. We also require Ameritech to explain why in those cases in which an interconnector discontinues taking service before all the recurring costs are incurred, it would be reasonable for Ameritech to recover such costs from that interconnector.

<sup>1</sup> *In the Matter of the New Expanded Interconnection Tariffs of the Ameritech Operating Companies', Bell Atlantic Companies', Puerto Rico Telephone Company*, CC Docket Nos. 96-185, 96-165, 96-160, Order Designating Issues For Investigation, DA 97-523 (released March 11, 1997) ("Designation Order").

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Answer: The bulk of the nonrecurring charge ("NRC") recovers nonrecurring investment, largely in the form of capitalized labor. That investment was amortized over the life of a building -- about 40 years. Of these costs, approximately 70% are not "reusable" or would have to be incurred again in full for a second and subsequent interconnecting parties. These are costs associated with engineering and design for the specific interconnection arrangement. The remaining 30% are associated with construction and security for the common collocation area. The recovery of these common costs was based on anticipated levels of collocation activity. See answer to ¶48 Question. Only seven (7) years' of these total costs, at their present worth, were factored into the NRC. The remaining 33 years' worth of costs are not factored into any rate. In light of the above, Ameritech's tariffed NRC assesses a conservative amount for the costs caused by the interconnector.

¶15 Question: We require Ameritech to explain why it is equitable for the initial interconnector to bear the full cost for caged construction and the subsequent interconnector to bear no cost particularly in cases where the initial interconnector occupied the cage for only a short period of time. We direct Ameritech to explain why the Commission should not require Ameritech to make a pro-rata refund to the initial interconnector for the undepreciated value of the cage, and permit Ameritech to impose on the subsequent interconnector a nonrecurring charge equal to the undepreciated value of the cage.

Answer: Ameritech's node enclosure rate element covers an optional security enclosure that the interconnector may request Ameritech to install or make separate arrangements to have constructed by an approved vendor. The

configuration of the node enclosure is specific to the interconnecting customer. If, at a future time the original interconnecting customer should vacate, the space may be used for other purposes or to accommodate another interconnector that may have different requirements. The cost of removal of a node enclosure installed by Ameritech or the interconnector is not a part of any rate element at this time. Reuse of the node enclosure may be possible, but vacant space in a central office equipment room can also be used for other purposes. Since there is no certainty of a second customer requiring the exact node enclosure of the original interconnector, there is not a certainty of cost recovery except with the original interconnector. The bookkeeping requirements associated with a refund program would be awkward, given the potential time lapse between the original interconnector vacating and a possible second interconnector entering the facility.

**¶16 Question:** We require Ameritech to respond to MFS's allegation that Ameritech's nonrecurring charges for cable splicing are unreasonable. We require Ameritech to explain why the costs of initial fiber splicing and splice testing is higher than the costs of subsequent fiber splicing and splice testing.

**Answer:** For both the Cable Vault Splicing and the Splice Testing rate elements the cost for the initial versus the subsequent fiber splicing and splice testing is higher because of the initial work that must be performed to prepare the fiber for splicing. Once this initial work has been performed to prepare the fiber for splicing or splice testing, this work does not have to be performed again in order to perform a subsequent splice or splice test unless the subsequent splicing or

prepare the sheath and inner case, prepare the splicing unit, and do the actual splice. The rate for an additional splice reflects only the technicians time to perform an individual splice. For splice testing, the rate for the initial test includes the time taken to prepare the site, as well as do the actual test. The rate for an additional splice test reflects only the technicians time to perform a single splice test.

¶128 Question: We require Ameritech to submit TRP charts that display its DS1 and DS3 physical collocation investments, direct costs, and prices.

Answer: The TRP charts are submitted as Attachment A.

¶137 Question: We require Ameritech to file a copy of cost studies on which its proposed rates are based.

Answer: The costs studies are submitted as Attachment B.

¶138 Question: Ameritech must document and explain investments, direct capital costs, direct operating expenses, and annual cost factors.

Answer: Ameritech uses the Long Run Service Incremental Cost (LRSIC) economic theory as the basis for its cost studies. The principles of this theory are forward-looking and incremental for all resources that exhaust, where all resources are treated as avoidable (no sunk investments). The timeframe of cost studies is considered long run. Ameritech cost studies are based upon the current or planned location of network facilities. The principles of LRSIC are also applied in the development of the cost factors that are the components of the Annual Cost Factors (ACF). The cost factors are mathematical relationships between various cost components (typically, investments and expenses). The sources for cost

factors include the financial database, engineering studies, economic consultants, corporate finance, tax, and capital recovery organizations. In keeping with the forward-looking principle of costs, historical financial data is converted to current and future values by employing Current Cost to Booked Cost ratios, wage inflation rates, and Telephone Plant Indices as appropriate. Attachment C is a description of each cost factor and how it is developed. Ameritech employs the Economic Costs of Network Services (ECONS) model to determine the annual costs of its investments. The cost factors are inputs to this model. Attachment D is an excerpt from the testimony filed for Ameritech Illinois in case I.C.C. Docket 96-0486 by Mr. William Palmer. It describes the ECONS model and how Ameritech's cost factors are applied to determine annual costs. While this testimony specifically addresses unbundled network elements and the TELRIC cost methodology in Ameritech Illinois, it is also applicable to LRSIC costing for the Ameritech region.

¶139 Question: Ameritech must document and explain the cost of capital or money used in developing direct cost and depreciable lives for plant and equipment.

Answer: The cost of capital or money used in developing direct costs is 11.5%.

Attachment E is an excerpt from the testimony of Mr. Michael Demagolis filed with the commissions of Illinois, Indiana, Michigan and Ohio which describes the cost of money calculation and the assumptions and methodologies on which the cost of debt, cost of equity, and capital structure are based. Attachment F is an

excerpt from the testimony filed for Ameritech Illinois in case I.C.C. Docket 96-0486 by Mr. Edward J. Marsh, Jr. This testimony describes the underlying assumptions for the development of depreciable lives for telephone plant and equipment. While it specifically addresses Ameritech Illinois and TELRIC cost methodology, it is also the basis upon which the economic lives that were used in the collocation cost study were developed.

140 Question: We require Ameritech to describe and explain labor costs and loadings.

Answer: The labor rates used to determine labor costs are developed on a directly assigned labor cost basis. They reflect only wages and those cost causative loadings incurred by the employee to perform their work functions. These labor costs include operational wages, paid absence, loadings for benefits, and wage loadings for administrative clerical, local supervisory, and if applicable, motor vehicle, tools, and miscellaneous expenses. Attachment G contains a description of the labor cost components of the directly assigned labor rate. The attachment also includes a chart showing the loading rate used in each state for benefits, motor vehicle, other tool expense, and plant and engineering miscellaneous expense. The hourly labor rate is derived from the Ameritech Rate Development System (ARDS) which extracts labor costs and hours for summarization from various financial feeder systems. An ARDS program aggregates annual labor cost data by state jurisdiction, activity groups, and rate elements on the basis of algorithms. Labor rates are categorized by operation, i.e., plant, engineering, and

miscellaneous. The annual cost data for each activity group is divided by the total annual productive hours for that respective activity group to determine the directly assigned hourly labor rate. Forecasted wage inflation rates are applied to the labor rates for each successive year to make them forward-looking.

**¶141 Question:** We require Ameritech to provide diagrams identifying each expanded interconnection component.

**Answer:** The diagrams and rate element descriptions are supplied as Attachment H.

**¶143-44 Question:** Ameritech must explain the methodology by which it developed a factor to determine the “total central office collocation floor area required to provide each transmission node,” including space for circulation and unusable space due to building obstructions, support equipment and function, including access corridors, stairways, space for heating, ventilation and air conditioning equipment, commercial AC power distribution, cable vaults, sewer and water rooms, and fire equipment areas. Ameritech is required to explain in specific terms why the additional space should be attributable to interconnectors when they take physical collocation from Ameritech.

**Answer:** The floor space charge is based on a nominal 100 SF transmission node space in a central office environment. The phrase “central office environment” refers to a central office equipment space with the necessary air conditioning, electrical and other support features that make it an appropriate environment in which to operate telecommunications equipment. The floor space charge has two cost inputs, the gross floor space necessary to provision the transmission node and the construction cost per gross square foot of central office building. The collocation service offering is for space in the central office equipment room in increments of 100 SF of net usable space. For purposes of

delivering a consistent product, we determined that the most efficient enclosure size would be approximately 9' x 11', which would also provide a uniform level of expectation for the interconnecting customer. In order to provision a nominal 100 SF of net usable space in a central office equipment room for the interconnecting customer's equipment, Ameritech needs 150 SF of gross space in the central office equipment room itself. The additional space is necessary to accommodate dedicated access (walkway) to the transmission node and to account for building obstructions such as columns, pipes and telecommunications cable and cable racks.

The collocation arrangement shown in Attachment I reflects an accommodation of two 100 SF transmission nodes in a central office equipment room. Each 100 SF transmission node is nominally 9'x11', with the transmission node enclosure having an additional dimensional character of about 4." This node configuration was determined by Ameritech equipment engineers to maximize the amount of equipment the interconnector could place in the node. The node configuration also fits into Ameritech's central offices, which typically have 18" square structural columns spaced at 20' intervals in the central office equipment rooms. Along the left side of the transmission nodes is space that is lost in the column line. This is an example of where pipes, telecommunications cable and cable racks can be encountered. Across the top of the transmission node is a dedicated access (patterned with diagonal lines) that provides access specifically for the



transmission nodes. The width of this access is prescribed by building codes to be minimally 42" to 44" clear. The partition across the top of the access is security between the collocation occupancy and Ameritech equipment and also has a dimensional character of about 4".

In mathematical terms, the following is an explanation of the dedicated space factor used to "gross up" of the nominal 100 SF transmission node space in a central office environment into a gross central office equipment space total:

<u>Net</u> floor space for nominal 9'x11' transmission node	100 SF
Accounting for building obstructions such as columns, pipes and telecommunications cable and cable racks	10 SF
Dedicated access (walkway) to the transmission node	40 SF
	<hr/> 50 SF
Dedicated space factor (50/100= 50%)	+ 50%
Total gross central office equipment space	<hr/> 150 SF

In addition to the central office equipment room, a central office building has support space that services the central office equipment room. The central office equipment room is the space that actually accommodates the telecommunications equipment; the support space includes, but is not limited to, access halls, mechanical, electrical service entry and equipment rooms, generator and fuel tank

rooms, stairs, elevators, water entry and fire suppression systems spaces, rest rooms and building delivery areas.

In a typical central office building, the central office equipment room represents approximately 75% of the floor space, and the support space represents 25%.

Therefore, the size of a central office building will actually by one-third (25% divided by 75%) larger than the space actually used for the central office equipment itself. The related support space component allocated to the 150 SF of equipment room space ( the gross amount of equipment room space necessary to house a nominal 9'x11' enclosure) is one-third of the central office equipment room space, or 50 SF. The total gross building space necessary to provision a 100 SF transmission node space in a central office environment is therefore 150 SF plus 50 SF, for a total of 200 SF.

This distinction between different building spaces based upon occupancy or use is consistent with real estate industry practices. Measures include gross square foot of building space (gross) and usable square foot of building space (usable). Usable refers to space occupied within the building, as opposed to support spaces. The calculation of gross space and usable space is documented in the IFMA (International Facility Management Association) 1994 Research Report #13,

entitled “Benchmarks II”.<sup>2</sup> Page 19 of this report identifies the gross, rentable and usable space within reported buildings by industry type. IFMA defines the Utilities group as one that includes utilities, communications and transportation companies. Ameritech would be classified a utility for the purposes of this report. The ratio of usable square footage of building space to gross square footage of building space in buildings reported in the Utilities group is 56% (236,028 usable SF divided by 419,668 gross SF), far lower than the 75% Ameritech applied. Thus, Ameritech applies standard real estate space measures and conservatively figures the ratio of support space necessary to serve the central office equipment room.

In mathematical terms, the following is an explanation of the support space factor used to “gross up” of the total gross central office equipment space in a central office environment into a gross central office building space total:

Total gross central office equipment space	150 SF
Support space factor (1/3 of central office equipment room space) which includes, but is not limited to, access halls, mechanical, electrical service entry and equipment rooms, generator and fuel tank rooms, stairs, elevators, water entry and fire suppression systems spaces, rest rooms and building delivery areas	50 SF
	<hr/>
Gross central office building space	200 SF

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<sup>2</sup> Included as Attachment J.

The cost associated with the additional space for which this factor accounts is directly attributable to physical collocation service and should be recoverable as a direct cost of that service rather than a cost that is common to all services and recoverable as an overhead cost. In developing the rate element, Ameritech took a LRSIC cost approach. In this case, the gross amount of building space directly attributed to accommodating an interconnector's request for collocation was determined in order to multiply it by the cost of providing that space. In the process described above, Ameritech "grosses up" total gross central office equipment space required to reflect the gross central office building space necessary to accommodate a collocater. The gross central office building square foot amount was multiplied by the market construction cost for central office

buildings as determined from the RS Means Building Construction Cost Data 1995 publication.<sup>3</sup> The RS Means Building Construction Cost Data 1995 refers to square foot of floor area, or total gross area of all floors, at grade and above, and does not include a basement. If Ameritech were to use net space of 100 SF, it would be able to recover only 50% of its costs.

To determine the total cost of providing floor space, Ameritech must take the gross square footage of space and multiply it by the market rate cost of construction. In the process described above, Ameritech “grosses up” total gross central office equipment space required to reflect the gross central office building space necessary to accommodate a collocator. This gross central office building space amount reflects the total space required to accommodate an interconnector in the central office equipment room and it is attributable to that interconnector. This gross central office building space is then multiplied by the cost for central office buildings as determined from the RS Means Building Construction Cost Data 1995 publication as described below.

¶45 Question: We require Ameritech to file all the pages from the *R.S. Means Data* book that is used to develop gross square foot cost of construction, to identify gross square foot costs for each central office for which such costs were calculated, and to file a copy of the explanation set forth in *R.S. Means Data* of the methodology used to derive the construction cost data set forth in that publication.

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<sup>3</sup> Included as Attachment K.

Answer: Ameritech used the RS Means Building Construction Cost Data 1995<sup>4</sup> to estimate the cost of construction for central office buildings. As identified in the instruction portion of the RS Means Data book titled “How the Book is Built: An Overview” on page iv, column two, there is a Square Foot and Cubic Foot Cost Division, Division 17, which contains costs for 59 different building types. RS Means Data cost figures are national averages that do not reflect geographical costs differences. RS Means provides separate location factors to adjust for geographical cost differences.

Division 17 costs are based on actual reported costs incurred by contractors that have built telephone exchanges during the past 10 years.<sup>5</sup> RS Means then adjusts these figures annually utilizing current cost information. The RS Means Data reflects advances and changes in constructing central offices that have occurred within the past 10 years. Therefore, Division 17 represents a “market view” of telephone exchange construction as reported by general contractors for a variety of projects and does not represent a specific Ameritech model.

Ameritech utilized the 75th percentile cost figures in estimating the cost of its central office construction costs because Ameritech believes that these figures are

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<sup>4</sup> Attachment K.

<sup>5</sup> See Attachment K for an explanation and a description of how Means receives input.

more inclusive of the forward-looking costs associated with a central office building and more accurately reflect the high quality of Ameritech's central office construction. RS Means also notes that the 75th percentile costs are more inclusive of such items as site work and special equipment. Admittedly, this is not the full cost that Ameritech would incur if it were to build a new central office. First, RS Means Data reports results by general contractors and does not include design fees of architects and engineers. Second, there are no land costs and transaction fees in the RS Means Data. Third, as an owner, Ameritech would also incur costs in the management of new construction.

Therefore, Ameritech utilized the RS Means Data for telephone exchanges to derive a construction cost of \$167 per square foot of gross central office building space, the national average, for its cost calculations. Ameritech chose not to apply the RS Means geographical factors because they tend to increase costs in urban locations, where demand for physical collocation is likely to be greatest.

**¶46 Question:** We require Ameritech to provide the specific Telephone Plant Index ("TPI") used in determining 1996 floor space investment levels, show the calculations that underlie in the derivation of 1996 floor space investment, identify the publisher of the TPI, and file a complete copy of the publishers explanation of the methodology used to derive the TPI.

**Answer:** The data and explanation are filed as Attachment M.

**¶47 Question:** We require Ameritech to identify the specific costs that comprise "other recurring expense" of \$1,094.40 per month included in its Transmittal No. 981, Description and Justification, Exhibit 3 at 1.

Answer: These “other recurring expenses” were identified as maintenance, operating, and administrative costs related to the management of the central office building. However, it has recently come to the attention of the costs analysts that these costs were already included in the cost recovery factors that are implied to the building costs to determine the floor space charge. Therefore, Ameritech is filing a tariff modification to reduce the floor space charge accordingly by \$91.20 per month (\$1,094.40 annually).

¶148 Question: Ameritech must fully explain the methodology used to develop costs for equipment or other assets associated with the COBO and the transmission node enclosure.

Answer: The floor space charge does not take into account the additional expenses associated with securing a central office for multi-tenant occupancy under collocation or the specific needs of the equipment being deployed by the interconnector, Ameritech developed a separate COBO charge to reflect these additional costs. The transmission node enclosure is an optional security enclosure that the interconnector may request Ameritech to install. A full description of the methodology will follow the COBO description.

The COBO charge includes costs associated with engineering the accommodations for the collocator’s equipment, configuring interior space, developing additional means of access/egress to the building and spaces within the building, and enhancing security, all necessary to accommodate the interconnecting customer.



The costs of accommodation are broken down into two divisions- the preliminary engineering and the design firm order. The COBO charge includes cost inputs from the collocation coordinator, outside plant engineering, power engineering, CSPEC, digital transport engineering and real estate. Furthermore, COBO charges are broken down into 'first' and 'additional' costs to reflect the initial costs associated with providing physical collocation and the additional costs related to additional 100 SF increments of space ordered at the same time.

Cost studies for COBO are included in Attachment N. As described above, COBO includes costs for engineering accommodations for the interconnector's equipment and connections. These labor costs reflect the experience participants have had in similar types of projects. There are also real estate costs for consulting engineering and contracted building work. The methodology for developing these costs is described below.

In development of the real estate cost inputs for the COBO charge, Ameritech used a list of 85 buildings, located throughout the region, where customers presently have virtual collocation and have expressed an interest to physically collocate in the future as a sample set for developing costs. For each of these buildings we surveyed the premises to the incremental cost to design, build and deliver a 100 SF physical collocation transmission node. Ameritech assumed as a

part of the survey that different central office buildings would have differing levels of collocation activity, essentially based on the size of the wire center customer base. Costs for items that benefited more than one collocator were distributed over the potential number of 100 SF transmission nodes that we estimated would be requested in the central office building. The main real estate costs categories in our building survey were architectural/general construction, security, electrical and mechanical. (See Attachment N.) Ameritech used the average cost for each of these categories as a basis for determining the COBO real estate costs for a 100 SF transmission node. Ameritech then added the costs associated with managing the real estate portion of the physical collocation projects, which is a fee that Ameritech pays to the provider of such project management services. This type of estimating and project management process is consistent with standard real estate practices.

In estimating some of the real estate costs incurred to accommodate collocation, costs for items that benefited more than one collocator were distributed over the potential number of 100 SF transmission nodes that were estimated to be requested in the central office building. It was assumed as a part of the survey that different central office buildings would have differing levels of collocation activity, essentially based on the size of the wire center customer base and adjusted the estimating on a scale where the largest would have eight 100 SF

nodes, medium wire centers would have four and smaller wire centers would have two.

The transmission node enclosure costs are for the installation of a security enclosure around the collocator's space. This is an optional rate element that can be ordered at any time by the interconnector. The costs for the first 100 SF include engineering and contracted work to install the security enclosure, with gate, lockset and grounding, around a nominal 9'×11' node. The additional node space enclosed at the same time is covered by the additional enclosure charge that reflects only contracted work (no additional engineering).

Ameritech did not provide individual TRP forms for the COBO and the transmission node enclosure but is instead providing the following references which contain the same level of detail that would have been provided if a separate TRP had been created for these rate elements:

For the COBO TRP data reference:

The assets included in the initial and additional Central Office Build Out (COBO) rate elements are individually identified and displayed in the Attachment N workpapers and on the DS1 TRP Chart III (pages 1 & 2) forms for the following functions:

- Common Construction Function
  - Engineering (Initial COBO only)
  - Building Work - installation
  - Asbestos Abatement - installation
- Construction Provisioning Function (Initial COBO only)
  - Collocation Coordinator - engineering
  - Outside Plant Engineer - engineering
  - Power Engineer - engineering
  - CSPEC - engineering
  - Real Estate - engineering
- Interconnector-Specific Function
  - Engineering (Initial COBO only)
  - Building Work - installation
- Security Installation Function
  - Engineering (Initial COBO only)
  - Building Work - installation

For the transmission node enclosure:

The assets that comprise the investment for both the initial and additional transmission node enclosures are individually identified and displayed on DS1 TRP form Chart III pages 1 and 2 under the DS1 Interconnector-Specific

Function. These assets for both the initial and additional transmission node enclosures include:

- Engineering (Initial transmission node enclosure only)
  - Fencing and Gate - installation
  - Grounding Costs - installation

Cost studies applicable to COBO and the transmission node enclosure are contained in Attachment B. Description of cost methodology is included in the answers to ¶¶38,39, and 40 Questions, above.

**¶¶88-89 Question:** Ameritech must justify the reasonableness of its tariff provisions that limit its own liability to actual direct damages but require interconnectors to indemnify Ameritech for any claims or other liabilities arising from the interconnectors use or occupancy of the central office space in all cases except for those resulting from Ameritech's sole negligence or willful misconduct.

**Answer:** These terms are common in commercial leases of all types and are based on the tenant's control of the space occupied.

With respect to limitation of liability, the rates for collocation are cost based and do not take into account the extraordinary potential loss Ameritech would incur if required to answer for loss of profits/harm that might be occasioned by Ameritech's negligence or failure to perform. Though the risk might be low, if the cost of insuring the risk without the limitation were built into the rates, the rates would be very considerably higher. In this regard, the justification for the

limitation of liability in this context is no different from its justification in the context of any telecommunications service.

With respect to indemnity, a similar logic applies. The collocator occupies an minimal area of the CO in comparison to the overall operations in the CO.

Ameritech does not have control over the collocator's activities within its space.

Yet the loss to Ameritech would be extreme if the collocator negligently burned down the CO. Were the collocator to be excused from incidental or consequential damages, the collocation rates would be much higher to incorporate the risk based cost of such an extreme loss.

The seeming "lack of parity" is a reasonable result of the disparate positions of the parties in regard to the collocation. The collocator by its negligence can cause great harm with (relatively) less risk to itself. Any Ameritech negligence will likely harm itself in excess of any harm to the collocator.

Finally, since the collocator has exclusive use and occupancy of the collocation space, it is not true that "the collocator appears to indemnify Ameritech for the acts of third parties arising from the use and occupancy of the collocation space without regard to the collocator's control over the third party."

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Michael S. Pabian", written over a horizontal line.

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# **ATTACHMENT A**



